Patent
Attorney Docket No. 05725.0623-00
Application No.: 09/600,132
Customer No. 22,852

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Gérard LANG et al.

Application No.: 09/600,132

PCT Filed: December 21, 1998

§ 371 Date: August 14, 2000

For: DYEING COMPOSITION CONTAINING A LACCASE AND KERATINOUS FIBRE DYEING METHOD

Group Art Unit: 1751

Examiner: E. Elhilo

Commissioner for Patents
Washington, DC 20231

Sir:

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

This is an appeal to the Board of Patent Appeals and Interferences ("the Board") from the final Office Action dated December 13, 2001, finally rejecting claims 23-62, in the above-referenced patent application. The appealed claims, as rejected, are set forth in the attached Appendix.

In support of the Notice of Appeal filed May 13, 2002 and pursuant to 37 C.F.R. § 1.192, Appellants present in triplicate this brief and enclose herewith a check for the fee of $320.00 required under 37 C.F.R. § 1.17(c). A Petition and fee for a five-month extension of time, extending the due date until October 13, 2002, is also enclosed. If any additional fees are required or if the enclosed

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payment is insufficient, Appellants request that the required fees be charged to Deposit Account No. 06-0916.

I. REAL PARTY IN INTEREST

L'Oréal, S.A. is the assignee of record.

II. RELATED APPEALS AND INTERFERENCES

Appellants' undersigned legal representative knows of no other appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 23-62 are pending in this application. No claim has been allowed.

IV. STATUS OF AMENDMENTS

No amendments to the claims have been filed subsequent to the final rejection dated December 13, 2001. A response under 37 C.F.R. § 1.116, filed on March 13, 2002, was entered.

V. SUMMARY OF INVENTION

The present invention relates to a composition for the oxidation dyeing of keratinous fibers comprising at least one enzyme of the laccase type, at least one oxidation dye, and at least one specific alkalinizing agent. As well, the present invention relates to methods of dyeing keratinous fibers, in particular human hair, with such a composition. Specification, page 1, lines 3-9.

The use of oxidation dyeing compositions for dyeing keratinous fibers is well known. Typically, these dyeing compositions contain oxidation bases (also called oxidation dye precursors) which are colorless or weakly colored compounds that, when combined with oxidizing products, can give rise to colored

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compounds by a process called oxidative condensation. Specification, page 1, lines 10-19. The addition of compounds called couplers or color modifiers can vary the colors obtained by using these oxidation dye precursors (also called oxidation bases.) Specification, page 1, lines 20-22.

The oxidation dyeing of keratinous fibers is generally carried out in an alkaline medium, in the presence of hydrogen peroxide. The use of alkaline media, however, in the presence of hydrogen peroxide has the disadvantage of causing substantial degradation of the fibers, as well as discoloration of the keratinous fibers. In an effort to remedy this problem, it was found that enzymatic systems, particularly those using a laccase, rather than hydrogen peroxide could be used. Specification, page 2, line 16 to page 3, line 5.

The enzyme based oxidation systems have their own problems, however. Particularly, the colors formed from this type of dyeing system are still inadequate from the point of view of homogeneity of the color distributed along the fiber, chromaticity (also referred to as luminosity), and dyeing power. Specification, page 3, lines 5-14.

Appellants have discovered new oxidation dye compositions containing, as an oxidizing system, at least one enzyme of the laccase type and at least one specific alkalinizing agent, wherein the colors are more homogenous, more intense, and more chromatic without causing degradation or discoloring of the keratinous fibers, exhibiting low selectivity and good resistance to various attacks to which the hair may be subjected (*e.g.* light, weather, washing, permanent

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waving, perspiration, or rubbing). Specification, page 2, lines 7-8 and page 3, lines 16-27.

VI. ISSUES

The issue is whether claims 23-62 are patentable under 35 U.S.C. § 103(a) over *Aaslyng et al.* (WO 97/19998) in view of *Audousset et al.* (U.S. 5,769,903).

VII. GROUPING OF CLAIMS

Each claim of this patent application is separately patentable, and upon issuance of a patent will be entitled to a separate presumption of validity under 35 U.S.C. § 282. For convenience in handling this appeal, however, the claims will be grouped in one group. Thus, pursuant to 37 C.F.R. § 1.192(c)(7), in this appeal, the rejected claims will stand or fall together with respect to the pending rejection.

VIII. ARGUMENT

The Examiner rejected claims 23-62 under 35 U.S.C. § 103(a) over *Aaslyng et al.* (WO 97/19998) in view of *Audousset et al.* (U.S. 5,769,903). Appellants maintain that a *prima facie* case of obviousness has not been established for the reasons set forth below.

A. The Examiner has not met the requirements for making a prima facie case of obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art references must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the

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art, to modify or combine the references. Third, there must be a reasonable expectation of success for the modification or combination. M.P.E.P. § 2143. "Both the suggestion and the reasonable expectation of success must be found in the prior art reference, not in the applicant's disclosure." *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991).

Here, the Examiner has failed to meet at least two of the above criteria. The Examiner uses *Aaslyng* as his primary reference because (as stated by the present Examiner's predecessor) "*Aaslyng* teaches a hair dyeing composition comprising laccase enzyme dye precursor[s] as oxidation bases...." Office Action dated July 11, 2001 at 2. *Aaslyng,* however, neither teaches nor suggests an alkalinizing agent as required by the present claims. To remedy this deficiency, the Examiner relies on *Audousset* for its teaching of a "composition for the oxidation dyeing of keratin fibers and alkaline compound." *Id.* at 3. The Examiner concludes that one skilled in the art would have been motivated to modify *Aaslyng* by adding the alkalinizing agents taught by *Audousset*, arguing that "[s]uch modification would be obvious because one skilled in the art would expect that the use of alkaline compound[s] would be similarly useful and applicable to the [sic] *Aaslyng's* composition for dyeing hair." *Id.* at 3-4. Further, in the Advisory Action, the Examiner alleges that "*Aaslyng* teaches a hair dyeing composition comprising oxidizing agents such as [a] laccase enzyme, dyeing precursors and couplers...and *Audousset* teaches...[a] hair dyeing composition comprising dyeing precursors, couplers, and oxidizing agents...." Advisory Action at 2. The Examiner concludes, "the combination of references is proper

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and there is a reasonable expectation of success by combining the references that teaches [sic – teach] similar ingredients for the same utility." *Id.*

Appellants disagree and believe, as discussed below, that the Examiner's conclusory remarks do not satisfy the particularized findings required by law. Further, Appellants maintain that one of ordinary skill in the art would not have been motivated to include the alkanizing agent of *Audousset* in the composition of *Aaslyng*, and that *Audousset* does not contemplate its use with the enzymatic systems of *Aaslyng*. Moreover, given the general unpredictability in the art, there would not have been a reasonable expectation of success for this modification.

1. No motivation or suggestion exists to make the proposed modification

The threshold for establishing motivation or suggestion to modify a prior art reference is high. The Examiner can satisfy the burden of establishing a *prima facie* case of obviousness "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to modify the relevant teachings of the references." *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988) (citations omitted) (emphasis added). The Federal Circuit has recently reaffirmed the Examiner's high burden to establish a *prima facie* case of obviousness and has emphasized the requirement of specificity. *See In re Sang-Su Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). In *Lee*, the Federal Circuit held that "[t]he factual inquiry whether to modify or combine references must be thorough and searching. It must be based on objective evidence of record. This precedent

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has been reinforced in myriad decisions, and cannot be dispensed with." *Id.* 277 F.3d at 1433 (emphasis added).

In this case, *Aaslyng* does not provide the requisite motivation necessary to establish a *prima facie* case of obviousness because *Aaslyng* does not suggest the use of any alkalinizing agent, let alone the more specific basifying agent as required in *Audousset*. Further, *Audousset* does not teach or suggest the use of basifying agents in combination with laccases – or any type of enzyme, for that matter – as used in *Aaslyng*.

Thus, without a suggestion for modification in the references themselves, the Examiner cannot properly make this rejection. Indeed, the Examiner must point specifically to a suggestion regarding the proposed modification as it is impermissible to base a rejection on hindsight analysis alone. Here, the Examiner has not pointed to any actual, objective evidence of record that would have led one of ordinary skill in the art to expect the feasibility or utility of such a modification, as suggested by the Examiner. Broad conclusory statements regarding the teachings of multiple references, standing alone, are not "evidence." *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). As such, the Examiner has not cited any "clear and particular" evidence that would provide the necessary evidence of a suggestion, teaching, or motivation to modify *Aaslyng* by using *Audousset*. The Examiner has not explained, nor can Appellants see how he could explain, how one skilled in the art, with both *Aaslyng* and *Audousset* in hand, would have been motivated to pick the relevant properties from each reference to produce the claimed invention. Thus, the Examiner has

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not established a *prima facie* case of obviousness and the rejection should be withdrawn for at least this reason.

2. No reasonable expectation of success from the combination of references exists

In addition to the lack of motivation or suggestion to modify, the Examiner has failed to provide any evidence showing that even if the modification were attempted, one of ordinary skill in the art would have a reasonable expectation of success to modify the references to obtain the present invention.

The formulation of oxidation dyes is an "extremely complicated" matter according to Zviak, THE SCIENCE OF HAIR CARE, 271-272 (Charles Zviak ed., 1986). (copy enclosed for the Board's convenience). The results of major oxidative coupling reactions are known (*i.e.*, the color obtained can generally, but not always, be predicted), but as Zviak points out, "any varying element can cause a major change." *Id.* at 272, lines 25-26.

Other scientists agree with Zviak that the science behind the hair dyeing art is very unpredictable. The unpredictability derives from at least the environment in which dyeing occurs, and the complexity of the chemical reactions, as is the case with the present invention. According to Pohl:

> Since a number of competing chemical reactions are going on simultaneously to effect the final color result, it may be imagined that making natural-appearing shades of oxidation dyes products is very complicated. The actual chemistry is even further complicated: the hair plays a part in the final result, in that the diffusion of the intermediates into the air, both before and after any chemical reactions have occurred, plays an important part of the process, and one cannot predict the final color result from a knowledge of the solution chemistry of the dyes.

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S. Pohl, Ph.D., "The Chemistry of Hair Dyes," Cosmetics & Toiletries, vol. 103, May 1988, pp. 57-66 at page 64.

Other scientists comment that the unpredictability in the hair dyeing art is even greater based on the variability of each person's hair taken together with the inability to predict how the particular complex chemical reactions are affected by an individual's hair. In general,

> [a] further complication in predicting the outcome of competing reactions inside the hair fiber is that it will depend not only on the relative reactivity of the competing couplers, but also on their relative rates of diffusion from the dye bath into the hair. Furthermore, for competing reactions taking place inside a swollen keratin fiber, we do not know to what extent the rate of the coupling reactions will be diffusion controlled.

J. Corbett, *Chemistry of Hair Colorant Processes - Science as an aid to Formulation and Development,*" J. Soc. Cosmet. Chem., 35, Sept./Oct. 1984, pp. 297-310 at 299.

Here, in view of the scientific opinion to the contrary as set forth above, the Examiner has failed to provide any evidence to show why one of ordinary skill in the art would have reasonably expected a successful dye to be formed from the proposed modification. As discussed above, the Examiner must specifically point to evidence that suggests that there would have been a reasonable expectation of success if the references were combined as he proposes. Here, however, such evidence does not exist because, quite simply, *Audousset* does not teach or suggest the use of laccases, while *Aaslyng* fails to teach or suggest the use of basifying agents. Their combination would involve picking a single ingredient out of a successful peroxide-oxidized dye composition (*Audousset's)*

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and putting it into a successful laccase-oxidized composition *(Aaslyng's)* with no guidance whatsoever to do so other than the fact that both compositions relate to oxidation hair dyeing. This hardly constitutes the basis for a "reasonable expectation," particularly given the state of the art discussed above.

Hence, neither reference can suggest the success of the proposed combination, and one of ordinary skill in the art would not have had the reasonable expectation of success for making the modification proposed by the Examiner. One of ordinary skill in the art, knowing that the art is unpredictable, would not have reasonably expected success based on the disclosures of record. The rejection is thus improper for this further reason.

B. The Examiner's rejection based on *Kerkhoven* is misplaced

In the Final Office Action, the Examiner rejected Applicants' prior arguments "because the arguments [are] against the references individually, [and] one cannot show nonobviousness by attacking references individually where the rejections are based on a combination of references." Final Office Action at page 2. The Examiner proceeded to cite *In re Keller*, 642 F.2d 413 (C.C.P.A. 1981) and *In re Merck & Co.*, 800 F.2d 1091 (Fed. Cir. 1986). Additionally, the Examiner asserted that "it is prima facie obvious to combine two compositions each of which is taught by [the] prior art to be useful for [the] same purpose in order to form [a] third composition that is to be used for [the] very same purpose," and cited *In re Kerkhoven*, 205 U.S.P.Q. 1069 (C.C.P.A. 1980) for support. *Id.*

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Appellants strongly disagree with the Examiner's attempt to rely on *Kerkhoven* as a short cut to establishing a prima facie case of obviousness without first establishing the elements of a prima facie case as required by the Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966). The rejection should be reversed for this reason alone.

Further, the Examiner's reliance on *Kerkhoven* to establish a *prima facie* case of obviousness is improper because neither the facts nor the holding of that decision apply to the present case. In *Kerkhoven*, the applicant claimed a process for preparing a detergent composition comprising mixing two known detergent materials. The court reasoned that "the idea of combining [the two detergent materials] flows logically from their each having been individually taught [each for the very same purpose, *i.e.*, as detergents] in the prior art." 205 U.S.P.Q. 1069, 1072. Based on this reasoning, the court held that the claims at issue requiring "no more than the mixing together" of two conventional detergents to make a third detergent composition set forth "prima facie obvious subject matter." 205 U.S.P.Q. 1069, 1072 (emphasis added).

The presently claimed invention, however, does not fall within the facts of *Kerkhoven* because the present invention does not involve merely mixing two dyeing compositions, let alone those individually taught in *Aaslyng* and *Audousset*. Instead, to make his proposed combination from the references, the Examiner would have to pick and choose among numerous disclosed compounds in each reference in a hindsight attempt to obtain the presently claimed invention.

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Furthermore, the combination of a basifying agent, a laccase, and an oxidation dye in a dyeing composition is not merely physical mixing. To achieve color, oxidation bases, when combined with oxidation products (also called oxidizing agents) such as a laccase, produce color by a chemical reaction called oxidative condensation. This is very different from mere physical mixing, and because physical mixing is not analogous to a chemical reaction, *Kerkoven* does not apply to this case. The complexity of these dyeing compositions and their combinations is, qualitatively, entirely different from *Kerkhoven*'s pair of anionic and cationic detergents. However, the Examiner apparently failed to properly consider this complexity and reactivity when attempting to support the present rejection based on *Kerkhoven*. Regardless, since the suggested combination is a reactive composition and not a mere mixture, the Examiner's reliance on *Kerkhoven* is misplaced.

For this additional reason, the rejection under § 103 should be withdrawn.

IX. CONCLUSION

In view of the foregoing, Appellants respectfully request that each rejection be reversed and withdrawn.

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Please grant any extensions of time required to enter this Brief and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, L.L.P.

Dated: December 11, 2002

By: Thalia V. Warnement
Thalia V. Warnement
Reg. No. 39,064

Enclosures:

1. THE SCIENCE OF HAIR CARE, 271-273 (Charles Zviak ed., 1986).

2. S. Pohl, Ph.D., "*The Chemistry of Hair Dyes*," Cosmetics & Toiletries, vol. 103, May 1988, pp. 57-66.

3. J. Corbett, *Chemistry of Hair Colorant Processes - Science as an aid to Formulation and Development*," J. Soc. Cosmet. Chem., 35, Sept./Oct. 1984, pp. 297-310.

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APPENDIX - PENDING CLAIMS

23. A composition for the oxidation dyeing of keratinous fibers comprising:

(a) at least one enzyme of the laccase type;

(b) at least one alkalinizing agent chosen from:

(i) basic amino acids;

(ii) compounds of the following formula (A):

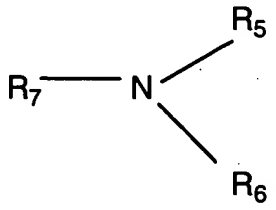
$$X(OH)_n$$

wherein n is equal to 1 or 2; X is chosen from K, Li and $N^+R_1R_2R_3R_4$

wherein R_1, R_2, R_3, and R_4, which are identical or different, are each chosen from C_1-C_4 alkyl groups, C_1-C_4 monohydroxyalkyl groups and C_2-C_4 polyhydroxyalkyl groups when n=1; or

X is chosen from Mg and Ca when n=2;

(iii) compounds of the following formula (B):



wherein R_5 is chosen from hydrogen groups, C_1-C_6 alkyl groups, C_1-C_6 monohydroxyalkyl groups, and C_2-C_6 polyhydroxyalkyl groups;

R_6 and R_7, which are identical or different, are each chosen from hydrogen groups, C_1-C_6 alkyl groups, C_1-C_6 monohydroxyalkyl groups, and C_2-C_6 polyhydroxyalkyl groups;

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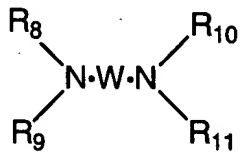
with the proviso that R_5, R_6, and R_7 are not simultaneously chosen from C_2 ß-hydroxyalkyl groups;

with the additional proviso that if R_6 and R_7 are simultaneously chosen from H, then R_5 is not chosen from C_2 monohydroxyalkyl groups and branched C_4 monohydroxyalkyl groups;

and with the additional proviso that if R_5 is chosen form H and C_1-C_6 alkyl groups and simultaneously R_6 is chosen from C_1-C_6 alkyl groups, then R_7 is not chosen from H and C_1-C_6 alkyl groups; and

(iv) compounds of the following formula (C):



(C)

wherein W is chosen from propylene groups optionally substituted with a substituent chosen form hydroxyl groups and C_1-C_4 alkyl groups: R_8, R_9, R_{10} and R_{11}, which are identical or different, are each chosen from hydrogen groups, C_1-C_4 alkyl groups and C_1-C_4 hydroxyalkyl groups; and

(c) at least one oxidation dye with the proviso that said at least one oxidation dye is not chosen from autooxidizable indole dyes.

24. A composition according to Claim 23, wherein said at least one enzyme of the laccase type is chosen from laccases of plant origin, animal origin, fungal origin, and bacterial origin and laccases obtained by biotechnology.

25. A composition according to Claim 23, wherein said at least one enzyme of the laccase type is chosen from those produced by plants performing chlorophyll synthesis.

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26. A composition according to claim 23, wherein said at least one enzyme of the laccase type is chosen from those extracted from plants chosen from Anacardiaceae, Podocarpaceae, Rosmarinus off., Solanum tuberosumm, Iris sp., Coffea sp., Daucus carrota, Vinca minor, persea Americana, Catharenthus roseus, Musa sp., Malus pumila, Ginko biloba, Monotropa hypopithys, Aesculus sp., Acer pseudoplanus, Prunus persica and Pistacia palaestina.

27. A composition according to Claim 23, wherein said at least one enzyme of the laccase type is chosen from those derived from fungi chosen form Pyricularia orizae, Polyporus versicolor, Phizoctonia practicola, Rhus vernicifera, Scytalidium, Polyporus pinsitus, Mycelliophtora thermophila, Rhizoctonia solani, Tramates versicolor, fomes fomentarius, Chaetomium thermophile, Neurospora crassa, Corilols versicol, Botrytis cinerea, Rigidoporus lignosus, Phellinus noxius, Pleurotus ostreatus, Aspergillus nidulans, Podospora anserine, Agaricus bisporus, Gandoderma lucidum, Glomerella cingulata, Lactarius piperatus, Russula delica, Heterobasidion annosum, Thelephora terrestris, Cladosporium cladosporioides, Cerrena unicolor, Coriolus hirsutus, Ceriporiopsis subvermispora, Coprinus cinereus, Panaeolus papilionaceus, Panaeolus sphinctrinus, Schizophyllum commune, Dichomitius squalens and variants of all said fungi.

28. A composition according to Claim 23, wherein said at least one enzyme of the laccase type is present in a quantity ranging from 0.5 to 2000 lacu units per 100 g of said composition.

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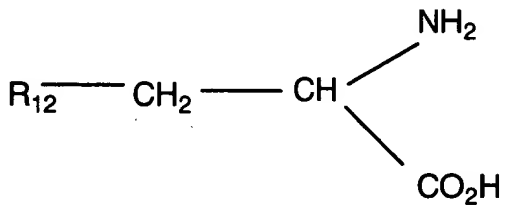
29. A composition according to Claim 23, wherein said at least one enzyme of the laccase type is present in a quantity ranging from 1000 to $4x10^7$ u units per 100 g of said composition.

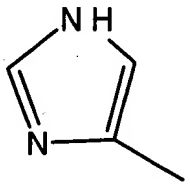
30. A composition according to Claim 23, wherein said at least one enzyme of the laccase type is present in a quantity ranging from 20 to $2x10^6$ ulac units per 100 g of said composition.

31. A composition according to Claim 23, wherein said basic amino acids are chosen from the following formula (D):



(D)

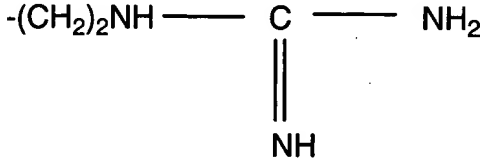
wherein R_{12} is chosen from:



$-(CH_2)_3NH_2$

$-(CH_2)_2NH_2$

$-(CH_2)_2NHCONH_2$



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32. A composition according to Claim 23, wherein said compounds of formula (B) are chosen from diethanolamine, monoisopropanolamine, diisopropanolamine, triisopropanolamine, 2-amino-2-methyl-1,3-propanediol, 2-amino-2-ethyl-1,3-propanediol, 2-amino-1-n-butanol, 1-diethylamino-2,3-propane-diol, tris(hydroxymethyl)aminomethane and ethylmonoethanolamine.

33. A composition according to Claim 23, wheein said at least one alkalinizing agent is present in a quantity ranging from 0.001% to 20% by weight relative to the total weight of said composition.

34. A composition according to Claim 33, wherein said at least one alkalinizing agent is present in a quantity ranging from 0.01% to 5% by weight relative to the total weight of said composition.

35. A composition according to Claim 23, wherein said at least one alkalinizing agent is present in a quantity ranging from 0.05% to 3% by weight relative to the total weight of said composition.

36. A composition according to Claim 23, wherein said at least one oxidation dye is at least one oxidation base chosen from ortho- and para-phenylenediamines, ortho- and para-aminophenols, heterocyclic bases, and the acid addition salts of all said oxidation bases.

37. A composition according to Claim 36, wherein said at least one oxidation base is present in a concentration ranging from 0.005% to 12% by weight relative to the total weight of said composition.

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38. A composition according to Claim 37, wherein said at least one oxidation base is present in a concentration ranging from 0.005% to 6% by weight relative to the total weight of said composition.

39. A composition according to Claim 36, wherein said acid addition salts are chosen from hydrochlorides, hydrobromides, sulphates, tartrates, lactates and acetates.

40. A composition according to Claim 23, wherein said at least one oxidation dye is at least one coupler chosen from meta-phenylenediamines, metaminophenols, meta-diphenols, heterocyclic couplers and the acid addition salts of all said couplers.

41. A composition according to Claim 40, wherein said at least one coupler is chosen from 2-methyl-5-aminophenol, 5-N-(β-hydroxyethyl)amino-2-methylphenol, 3-aminophenol, 1,3-dihydroxybenzene, 1,3-dihydroxy-2-methylbenzene, 4-chloro-1,3-dihydroxybenzene, 2,4-diamino-1-(β-hydroxyethyloxy)benzene, 2-amino-4-(β-hydroxyethylamino)-1-methoxybenzene, 1,3-diaminobenzene, 1,3-bix(2,4-diaminophenoxy)propane, sesamol, α-naphthol, 6-hydroxyindole, 4-hydroxyindole, 4-hydroxy-N-methylindole, 6-hydroxyindoline, 2,6-dihydroxy-4-methylpyridine, 1-H-3-methylpyrazol-5-one, 1-phenyl-3-methylpyrazol-5-one, 2,6-dimethylpyrazolo[1,5-b]-1,2,4-triazole, 2,6-dimethyl[3,2-c-]-1,2,4-triazole, 6-methylpyrazolo[1,5-a]benzimidazole and the acid addition salts of all said couplers.

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42. A composition according to Claim 40, wherein said at least one coupler is present in a concentration ranging from 0.0001% to 10% by weight relative to the total weight of said composition.

43. A composition according to Claim 42, wherein said at least one coupler is present in a concentration ranging from 0.005% to 5% by weight relative to the total weight of said composition.

44. A composition according to Claim 40, wherein said acid salts are chosen from hydrochlorides, hydrobromides, sulphates, tartrates, lactates and acetates.

45. A composition according to Claim 23, further comprising at least one direct dye.

46. A composition according to Claim 45, wherein said at least one direct dye is chosen from nitro, azo and anthraquinone dyes.

47. A composition according to Claim 23, further comprising at least one carrier appropriate for keratinous fibers.

48. A composition according to Claim 47, wherein said at least one carrier is chosen from water and at least one organic solvent.

49. A composition according to Claim 48, wherein said at least one organic solvent is present in a concentration ranging from 1% to 40% by weight relative to the total weight of said composition.

50. A composition according to Claim 49, wherein said at least one organic solvent is present in a concentration ranging from 5% to 30% by weight relative to the total weight of said composition.

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51. A composition according to Claim 23, having a pH from about 4 to about 11.

52. A composition according to Claim 51, wherein said pH varies from about 6 to about 9.

53. A composition according to Claim 23, further comprising at least one suitable cosmetic adjuvant chosen from surfactants, polymers, thickeners, antioxidants, enzymes different from said at least one enzyme of the laccase type as defined in Claim 23, penetrating agents, sequestering agents, perfumes, dispersing agents, film-forming agents, screening agents, vitamins, preservatives and opacifying agents.

54. A composition according to Claim 23 in the form of an aqueous or aqueous/alcoholic lotion, a gel, a milk, a cream, an emulsion, a thickened lotion or a thickened foam.

55. A composition according to Claim 23, wherein said composition is ready-to-use.

56. A composition according to Claim 23, wherein said keratinous fibers are human keratinous fibers.

57. A composition according to Claim 56, wherein said human keratinous fibers are hair.

58. A method of dyeing keratinous fibers comprising applying to said keratinous fibers for a sufficient time to develop a desired color at least one dyeing composition comprising:

(a) at least one enzyme of the laccase type;

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(b) at least one alkalinizing agent chosen from:

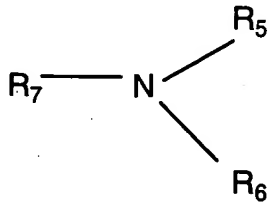
(i) basic amino acids;

(ii) compounds of the following formula (A):

$$X(OH)_n$$

wherein n is equal to 1 or 2; X is chosen from K, Li and $N^*R_1R_2R_3R_4$ wherein R_1, R_2, R_3, and R_4, which are identical or different, are each chosen from C_1-C_4 alkyl groups, C_1-C_4 monohydroxyalkyl groups and C_2-C_4 polyhydroxyalkyl groups when n=1; or X is chosen from Mg and Ca when n=2;

(iii) compounds of the following formula (B);



wherein R_5 is chosen from hydrogen groups C_1-C_6 alkyl groups, C_1-C_6 monohydroxyalkyl groups, and C_2-C_6 polyhydroxyalkyl groups;

R_6 and R_7, which are identical or different, are each chosen from hydrogen groups, C_1-C_6 alkyl groups, C_1-C_6 monohyroxyalkyl groups, and C_2-C_6 polyhydroxyalkyl groups;

with the proviso that R_5, R_6, and R_7 are not simultaneously chosen from C_2 β-hydroxyalkyl groups;

with the additional proviso that if R_6 and R_7 are simultaneously chosen from H, then R_5 is not chosen from C_2 monohydroxyalkyl groups and ranched C_4 monohydroxyalkyl groups;

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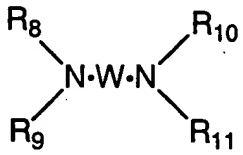
and with the additional proviso that if R_5 is chosen from H and C_1-C_6 alkyl groups and simultaneously R_6 is chosen from C_1-C_6 alkyl groups, then R_7 is not chosen from H and C_1-C_6 alkyl groups; and

(iv) compounds of the following formula (C):



(C)

wherein W is chosen from propylene groups optionally substituted with a substituent chosen from hydroxyl groups and C_1-C_4 alkyl groups; R_8, R_9, R_{10} and R_{11}, which are identical or different, are each chosen from hydrogen groups, C_1-C_4 alkyl groups and C_1-C_4 hydroxyalkyl groups; and

(c) at least one oxidation dye with the proviso that said at least one oxidation dye is not chosen from autooxidizable indole dyes.

59. A method of dyeing keratinous fibers according to Claim 58, wherein said keratinous fibers are human keratinous fibers.

60. A method of dyeing keratinous fibers according to Claim 59, wherein said human keratinous fibers are hair.

61. A method for dyeing keratinous fibers comprising the steps of:

(a) storing a first composition,

(b) storing a second composition separately from said first composition,

(c) mixing the first composition with the second composition to form a mixture, and

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(d) applying said mixture to said keratinous fibers for a time sufficient to achieve a desired colouration,

wherein said first composition comprises said at least one oxidation dye in a medium appropriate for keratinous fibers, and

wherein said second composition comprises said at least one enzyme of the laccase type and said at least one alkalinizing agent in a medium appropriate for keratinous fibers.

62. A multicompartment device or a dyeing kit, comprising a first compartment containing a composition (A) comprising, in a medium appropriate for dyeing, at least one oxidation dye and a second compartment containing a composition (B), comprising, in a medium appropriate for keratinous fibers, at least one enzyme of the laccase type, wherein at least one of said composition (A) and composition (B) comprises at least one alkalinizing agent chosen from:

(i) basic amino acids;

(ii) compounds of the following formula (A):

$$X(OH)_n$$

wherein n is equal to 1 or 2; X is chosen from K, Li and $N^*R_1R_2R_3R_4$ wherein R_1, R_2, R_3, and R_4, which are identical or different, are each chosen from C_1-C_4 alkyl groups, C_1-C_4 monohydroxyalkyl groups and C_2-C_4 polyhydroxyalkyl groups when n=1; or

X is chosen from Mg and Ca when n=2

(iii) compounds of the following formula (B);

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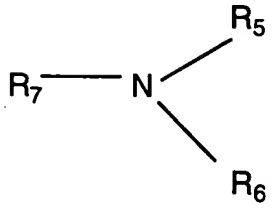


wherein R_5 is chosen from hydrogen groups, C_1-C_6 alkyl groups, C_1-C_6 monohydroxyalkyl groups, and C_2-C_6 polyhydroxyalkyl groups;

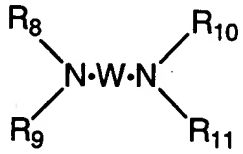
R_6 and R_7, which are identical or different, are each chosen from hydrogen groups, C_1-C_6 alkyl groups, C_1-C_6 monohydroxyalkyl groups, and C_2-C_6 polyhydroxyalkyl groups;

with the proviso that R_5, R_6, and R_7 are not simultaneously chosen from C_2 β-hydroxyalkyl groups;

with the additional proviso that if R_6 and R_7 are simultaneously chosen from H, then R_5 is chosen from C_2 monohydroxyalkyl groups and branched C_4 monohydroxyalkyl groups;

and with the additional proviso that if R_5 is chosen from H and C_1-C_6 alkyl groups and simultaneously R_6 is chosen from C_1-C_6 alkyl groups, then R_7 is not chosen from H and C_1-C_6 alkyl groups; and

(iv) compounds of the following formula (C):



(C)

wherein W is chosen from propylene groups optionally substituted with a substituent chosen from hydroxyl groups and C_1-C_4 alkyl groups; R_8, R_9, R_{10}, and

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R_{11}, which are identical or different, are each chosen from hydrogen groups, C_1-C_4 alkyl groups and C_1-C_4 hydroxyalkyl groups.

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